

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An apparatus for searching for broadcast signals in a television (TV) comprising:

a storage medium for storing a broadcast signal, which is received from the TV, in units of a predetermined sequential and cyclical time period;

a skip control unit for skip-sampling the broadcast signal stored in the storage medium, based on a set multiple-times speed; and

a direct move (DM) control unit for searching the broadcast signal stored in the storage medium for the location of a frame corresponding to a set time point.

2. (original): The apparatus of claim 1, wherein the storage medium is a Hard Disc Drive (HDD).

3. (original): The apparatus of claim 1, wherein the storage medium stores the broadcast signal in real time.

4. (original): The apparatus of claim 1, further comprising:

a slow control unit for reproducing one frame N times repeatedly if a slow multiple-times speed is set to $1/N$ (N is an integer).

5. (original): The apparatus of claim 1, wherein the skip control unit samples frames by skipping frames based on a set multiple-times speed, starting from an I frame.

6. (original): The apparatus of claim 1, wherein the DM control unit searches for a frame, by calculating the address pointer location value of a previous I frame, which corresponds to a set time, based on a current I frame, according to a predetermined algorithm.

7. (currently amended): An apparatus for searching for broadcast signals in a television (TV) comprising:

a storage medium for storing a broadcast signal, which is received from the T;
a skip control unit for skip-sampling the broadcast signal stored in the storage medium,
based on a set multiple-times speed; and

a direct move (DM) control unit for searching the broadcast signal stored in the storage medium for the location of a frame corresponding to a set time point~~The apparatus of claim 6,~~

wherein the DM control unit searches for a frame, by calculating the address pointer location value of a previous I frame, which corresponds to a set time, based on a current I frame,
according to a predetermined algorithm, and

wherein a backward search algorithm of the predetermined algorithm comprises the steps of:

- (a) calculating a distance value (Ptemp) from a current address pointer value (Pnow) corresponding to the set time;
- (b) calculating the difference (Pd) between the current address pointer value (Pnow) and the distance value (Ptemp) calculated in step (a);
- (c) comparing the value (Pd) with the minimum value (Pmin) of the address pointers of the storage medium; and
- (d) determining the value (Pd) as the address pointer value of a location which is searched for if the comparison result of step (c) indicates that the value (Pd) is equal to or greater than the minimum value (Pmin), and otherwise, determining a value, which is obtained by subtracting the minimum value (Pmin) from the value (Pd) and adding the subtraction result to the maximum value (Pmax) of address pointers of the storage medium plus 1, as the address pointer value of the location which is searched for.

8. (currently amended): An apparatus for searching for broadcast signals in a television (TV) comprising:

a storage medium for storing a broadcast signal, which is received from the T;

a skip control unit for skip-sampling the broadcast signal stored in the storage medium, based on a set multiple-times speed; and

a direct move (DM) control unit for searching the broadcast signal stored in the storage medium for the location of a frame corresponding to a set time point,

wherein the DM control unit searches for a frame, by calculating the address pointer location value of a previous I frame, which corresponds to a set time, based on a current I frame, according to a predetermined algorithm, and~~The apparatus of claim 6,~~

wherein a forward search algorithm of the predetermined algorithm comprises the steps of:

(a) calculating a distance value (Ptemp) from a current address pointer value (Pnow) corresponding to the set time;

(b) calculating a sum (Pd) of the current address pointer value (Pnow) and the distance value (Ptemp) calculated in step (a);

(c) comparing the value (Pd) with a maximum value (Pmax) of the address pointers of the storage medium; and

(d) determining the value (Pd) as the address pointer value of a location which is searched for if the comparison result of step (c) indicates that the value (Pd) is not greater than the maximum value (Pmax), and otherwise, determining a value, which is obtained by subtracting the maximum value (Pmax) of address pointers of the storage medium plus 1 from the value (Pd), as the address pointer value of the location which is searched for.

9. (original): The apparatus of claim 7, wherein Ptemp in step (a) is

$$\frac{(T_{set}) * Sr}{Id - 1}, \text{ where } T_{set} \text{ denotes an input time point calculated in terms of seconds, } Sr$$

denotes a scan rate, and Id denotes an interval between I frames.

10. (original): The apparatus of claim 8, wherein P_{temp} in step (a) is

$$\frac{(T_{set}) * Sr}{Id - 1}, \text{ where } T_{set} \text{ denotes an input time point calculated in terms of seconds, } Sr$$

denotes a scan rate, and Id denotes the interval between I frames.

11. (original): A method for backward searching for a broadcast signal in a method for searching for the broadcast signal using a storage medium of a TV, the method for backward searching comprising the steps of:

(a) determining whether or not a Direct Move (DM) key is input;

(b) setting a time point to be searched for if the DM key is input;

(c) calculating a distance value (P_{temp}) from a current address pointer value (P_{now})

corresponding to the time set in step (b);

(d) calculating a difference (P_d) between the current address pointer value (P_{now}) and the distance value (P_{temp}) calculated in step (c);

(e) comparing the value (P_d) with a minimum value (P_{min}) of the address pointers of the storage medium; and

(f) determining the value (P_d) as the address pointer value of a location which is searched for if the comparison result of step (e) indicates that the value (P_d) is equal to or greater than the minimum value (P_{min}), and otherwise, determining a value, which is obtained by subtracting the

minimum value (P_{min}) from the value (P_d) and adding the subtraction result to the maximum value (P_{max}) of address pointers of the storage medium plus 1, as the address pointer value of the location which is searched for.

12. (original): A method for forward searching for a broadcast signal in a method for searching for the broadcast signal using a storage medium of a TV, the method for forward searching comprising the steps of:

- (a) determining whether or not a Direct Move (DM) key is input;
- (b) setting a time point to be searched for if the DM key is input;
- (c) calculating a distance value (P_{temp}) from a current address pointer value (P_{now}) corresponding to the time set in step (b);
- (d) calculating a sum (P_d) of the current address pointer value (P_{now}) and the distance value (P_{temp}) calculated in step (a);
- (e) comparing the value (P_d) with a maximum value (P_{max}) of the address pointers of the storage medium; and
- (f) determining the value (P_d) as the address pointer value of a location which is searched for if the comparison result of step (e) indicates that the value (P_d) is not greater than the maximum value (P_{max}), and otherwise, determining a value, which is obtained by subtracting the maximum value (P_{max}) of address pointers of the storage medium plus 1 from the value (P_d), as the address pointer value of the location which is searched for.

13. (original): The method of claim 11, wherein Ptemp in step (c) is $\frac{(Tset) * Sr}{Id - 1}$,

where Tset denotes an input time point calculated in terms of seconds, Sr denotes a scan rate, and Id denotes an interval between I frames.

14. (currently amended): A ~~processor-readable~~computer storage medium for storing a program for performing a method for backward searching for a broadcast signal in a method for searching for the broadcast signal using a storage medium of a TV, the method for backward searching comprising the steps of:

- (a) determining whether or not a Direct Move (DM) key is input;
- (b) setting a time point to be searched for if the DM key is input;
- (c) calculating a distance value (Ptemp) from a current address pointer value (Pnow) corresponding to the time set in step (b);
- (d) calculating a difference (Pd) between the current address pointer value (Pnow) and the distance value (Ptemp) calculated in step (c);
- (e) comparing the value (Pd) with a minimum value (Pmin) of the address pointers of the storage medium; and
- (f) determining the value (Pd) as the address pointer value of a location which is searched for if the comparison result of step (e) indicates that the value (Pd) is equal to or greater than the minimum value (Pmin), and otherwise, determining a value, which is obtained by subtracting the minimum value (Pmin) from the value (Pd) and adding the subtraction result to the maximum

value (P_{max}) of address pointers of the storage medium plus 1, as the address pointer value of the location which is searched for.

15. (currently amended): A ~~processor-readable~~computer storage medium for storing a program for performing a method for forward searching for a broadcast signal in a method for searching for the broadcast signal using a storage medium of a TV, the method for forward searching comprising the steps of:

- (a) determining whether or not a Direct Move (DM) key is input;
- (b) setting a time point to be searched for if the DM key is input;
- (c) calculating a distance value (P_{temp}) from a current address pointer value (P_{now}) corresponding to the time set in step (b);
- (d) calculating a sum (P_d) of the current address pointer value (P_{now}) and the distance value (P_{temp}) calculated in step (a);
- (e) comparing the value (P_d) with a maximum value (P_{max}) of the address pointers of the storage medium; and
- (f) determining the value (P_d) as the address pointer value of a location which is searched for if the comparison result of step (e) indicates that the value (P_d) is not greater than the maximum value (P_{max}), and otherwise, determining a value, which is obtained by subtracting the maximum value (P_{max}) of address pointers of the storage medium plus 1 from the value (P_d), as the address pointer value of the location which is searched for.